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ABSTRACT

A high versus low rationale approach in teaching reading to grade-7 students was tested. The high rationale included using a traditional basal series approach that emphasized the ability to identify "the reasons why of how to read" through rules or formulas. The low rationale approach deemphasized rules and formulas except as the need arose, and an individual approach was used. The control treatment was a high rationale individual approach. Teachers received inservice training for the approach used in their classroom. The population included all seventh graders in 27 classrooms randomly selected from the public junior high schools of Las Cruces, New Mexico. All subjects were pretested and post-tested in October and March with the Gates-MacGinitie Reading Test, Survey E, forms 1 and 2. The Lorge-Thorndike Intelligence Tests were administered to all subjects before treatment procedures were initiated. A nested design was used. Treatment of data was by analysis of covariance. A separate subanalysis of Anglo-American and Spanish-American ethnic groups was processed within the design. No significant differences were found for intelligence, approach, vocabulary, rate, comprehension, or ethnic group. References, charts, tables, and appendixes are included. (WB)

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U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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1969

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I. INTRODUCTION

A. Background of the problem.

Twenty-five years ago various aspects of reading on the secondary level were being discussed in journal articles, and in a few junior and senior high schools reading programs were actually in operation. In spite of this it has been only within the last decade, in fact, within the last eight years, that the importance and need for a reading program in grades seven through twelve have been fully recognized. Sterl A. Arthey predicted at the International Reading Association Convention, Dallas, Texas, May 1966, that when the history of reading instruction is written it will show that one of the major points of emphasis of the 1960's will be the organized extension of the developmental reading program into the secondary grades.

Since the sending of Sputnik 560 miles into space where it began its orbit around the earth, an extraordinary concernment about the teaching of reading began to manifest itself. Reading programs were expanded into the junior high level. Basal series reading programs expanded their series into the seventh and eight grade levels. Some junior high reading programs have accepted these basal texts as the method of teaching reading while other programs kept the literature textbooks for junior high reading. Yet one can find many junior high school reading programs that use machines and kits with programmed instruction for teaching reading. Individualized reading has also found its place in many junior high reading programs.

Classroom practitioners attempt to teach every class of children to read according to their intellectual ability. Many methods, techniques and materials are presently being used, yet educators emphasize the fact that many children are not learning to read adequately in our school, especially in the minority groups.

Poor reading is recognized as the most important single cause of educational retardation. Educational retardation has long been known to be highly correlated with low economic and social achievement. It is now generally accepted that illiteracy and poverty are passed from generation to generation and that it is the responsibility of education to break the links of this inheritance that deprives our nation of many useful individual talents which never reach fruition.

Miles Zintz reported of the low achievement in reading in the multiethnic groups of the Spanish Southwest. He cited schools where more than half of the juniors achieved below the 10th percentile on the Diagnostic Reading Test. It is of the opinion of Dr. Zintz as well as the Director of this project that many of these students are non-readers of English as far as making intelligent use of printed materials is concerned, yet they were graduated from the secondary schools.[1]

The project director after serving as a consultant to a number of secondary reading programs in the Spanish-Southwest has analyzed the underlying principles of above stated approaches to teaching reading with their relationship to learning with the following assumptions:

1. In the teaching of reading, different reading programs have different amounts of the rationale of reading (the reason why of how to read) within them.

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[1] Miles V. Zintz, Education Across Cultures, Dubuque: William C. Brown Book Company, 1963, p. 115.

2. It appears the greater the amount of the rationale of reading within a teaching program, the greater the amount of intelligence needed for learning to be recorded.

3. It appears the less the amount of the rationale of reading within a teaching program, the less amount of intelligence needed for learning to be recorded.

4. The media of the advertisement world has used a low rationale approach to communicate its message to the many individuals who have not found success in school or have dropped out.

5. Primitive cultures have used the low rationale approach to pass from generation to generation their cultural heritage.

6. With a high percentage of children in different ethnic groups not achieving in the basic skill of reading in the junior high school, it appears a low rationale approach would cause learning to read to be more effective.

B. Definition of Terms Used.

Rationale of Reading. The ability to identify the reasons why of how to read by rules and formulas.

High Rationale Approach. High Rationale Approach refers to traditional basal series approach to teaching reading with an emphasis on the reason why of how to read.

Low Rationale Approach. Low Rationale Approach refers to an individual approach to teaching reading with a de-emphasis on the reason why of how to read.

High Rationale Individual Approach. High Rationale Individual Approach refers to an approach which utilizes the "why of how to read" of the High Rationale

Approach and the individual planned conference and freedom of selection of reading material of the Low Rationale Approach.

Practice in Reading. Practice in reading refers to the act of the reading process when the child is so engrossed in reading that the child is not consciously aware of the skills he is using.

Planned Conference. Planned Conference refers to a four to ten minute private tutorial meeting which enables the teacher to be aware of the child's individual reading characteristics and make needed suggestions for improvement.

Reading Achievement. Scores achieved on the Gates-MacGinitie Reading Test Survey in vocabulary, comprehension, and speed and accuracy.

Analysis of Covariance. Analysis of Covariance refers to a statistical technique used to control experimental bias, which is concerned with the pre- and post-test measures where no exact control has been exercised over the pre- and post-test variable as independent. It makes use of the concepts of both analysis of variance and of regression.

Nested Design. Nested Design refers to an experimental research design where factor A is within factor B and factor B is within factor C, such as individuals within classes within schools within treatments. This is a system consisting of a unique order of classification criteria with such criterion being applicable within all categories of the preceding criterion.

II. OBJECTIVES OF THE STUDY

A. General Objectives.

The objectives of the project in junior high school reading included the following:

1. To test a high versus low rationale approach in teaching reading.

2. To provide in-service education for teachers selected for the project in the improvement of teaching reading.

3. To provide in-class supervision to assure that the different teaching approaches were followed as planned.

B. Specific Objectives.

Related to the general objectives of the study are the following specific objectives:

1. To determine differences among seventh grade children's reading achievement who were taught by different rationale approaches to reading.

2. To determine differences among high IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

3. To determine differences among average IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

4. To determine differences among low IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

5. To determine differences among Anglo American high IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

6. To determine differences among Anglo American average IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

7. To determine differences among Anglo American low IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

8. To determine differences among Spanish-American high IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

9. To determine differences among Spanish-American average IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

10. To determine differences among Spanish-American low IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

III. PROCEDURES AND TECHNIQUES OF THE STUDY

A. Pupil population and sampling.

In order to obtain data for this study, three experimental treatments were applied to twenty-seven groups to test the objectives of this project.

The sample was comprised of seventh grade children from the Las Cruces Public School District, Las Cruces, New Mexico.

In April 1968, a random sample of four Las Cruces Junior High schools was drawn to select three schools for this study.

Numbers were assigned to the classrooms in each selected school. As the first nine numbers appear in the table of random numbers, the classrooms were placed in a treatment category. Treatment I received the first, sixth, and seventh classroom selected. Treatment II received the second, fifth, and eighth classroom selected. Treatment III received the third, fourth, and ninth classroom selected. This process was repeated for each school.

TABLE 1

CLASSROOM ASSIGNMENT TO TREATMENT

Treatment I	Cl 1	Cl 6	Cl 7
Treatment II	Cl 2	Cl 5	Cl 8
Treatment III	Cl 3	Cl 4	Cl 9

B. School and community.

The children in the sample were selected from the Las Cruces School District Number 2. Las Cruces, New Mexico is situated in the agriculturally productive Mesilla Valley, which is part of the Rio Grande Valley. The Spanish-American heritage of Mesilla Valley dates back to early expeditions by Spanish explorers. The Spanish-American population of Las Cruces School District Number 2 is approximately 40 per cent of the total population. Negro and Indian ethnic groups combined comprise approximately 3 per cent of the population.

The location of White Sands Missile Range near Las Cruces and the growth of New Mexico State University within the city have resulted in population of approximately 51,818. The Las Cruces Public Schools enrolled 15,100 students in the 1968-69 school year.

Students in the Las Cruces Public Schools represent a wide range of socioeconomic levels and cultural backgrounds. Although instruction in the public schools is given in English, many students speak Spanish at home.

C. In-service education of teachers.

Teachers whose classrooms were selected at random for this experimental study were then enlisted into a series of in-service education related to the treatment effects. During September and October formal and informal meetings were held with teachers to establish the need, the rationale and the goals of the project. Teachers were then given training in techniques of the high rationale approach, the low rationale approach, and the high rationale individual approach. Materials were distributed and demonstrated as to their usage in each treatment. The in-service education also included the area of testing. A careful endeavor was made to ensure that all teachers understood and could put into practice the appropriate approach that was assigned to them.

D. Instructural approaches and materials.

To adopt and test a high and low rationale approach in the teaching of reading experimentally with seventh grade children in a multiethnic community, the director selected two approaches to teaching reading which are located at opposite ends of the continuum. The traditional basal series approach is located at the higher end of the continuum with a large portion of time devoted to the reasons why of how to read by rules and skills. The individual approach is located at the other end of the continuum which present the rules and skills of how to read when the individual child is in need of them. During the duration of this experiment by means of in-service meetings with teachers involved, the rationale factor was stressed with the High Rationale Approach and de-emphasized with the Low Rationale Approach. A third treatment was established to control the factors of individual attention and freedom of selection of reading materials to give direction with the final data of the study.

An analysis of three approaches of teaching reading, the High Rationale Approach, the Low Rationale Approach, and the High Rationale Individual Approach will be discussed in the order stated.

1. HIGH RATIONALE APPROACH

The high rationale approach is a highly sophisticated approach which stresses an understanding of the rules of reading in teaching children to read. The underlying principles of this particular approach would include the following conditions:

1. The child must know the rationale of reading to be able to read with understanding.
2. Group exposure during reading instruction is emphasized.
3. The child's new experiences in reading come from a single basal text.
4. The child should be taught the rules and skills of reading as prescribed by the scope and sequence charts of the basal.
5. The child is given little or no class time for free reading.

The high rationale approach has been used with various approaches to teaching reading throughout the history of reading the English language. With this approach the teacher has been concerned with teaching the rationale of reading (the reason why of how to read.) With this traditional approach, children have been taught the rules and skills of reading by means of formal group instruction. The child has received practice in reading only on his own or under the supervision of a parent or older sibling.

Little, if any, class time has been devoted to free reading or practice reading. This approach, staid in content, does not permit the child who is not independent in his own reading to have an opportunity to receive practice in the use of the tool so valuable to his progress in school.

The high rationale approach in this study emphasized the skills of reading in an academic manner from sequential reading skills charts during formal group instruction. The classroom teachers used the basal sequential reading charts to determine the scope and sequence of the reading skills taught during the reading lesson. In every lesson pupils were directed to use context and such phonetic clues as they need to figure out unfamiliar words for themselves. The use of the dictionary was a regular feature in most reading lessons.

A list of skills was presented for the child to use when identifying strange words independently. The list included: (1) using word analysis in conjunction with context to attack strange words; (2) using consonant sounds to attack a strange word; (3) using vowel sounds to attack a strange word; (4) using syllables to attack a strange word; (5) using known words plus letter sounds to attack compound words; and (6) using prefixes and suffixes to attack a strange word. During the reading lesson, this list of skills was expanded by the classroom practitioner. To illustrate, consider skill number (4), using syllables to attack a strange word. The classroom teacher reviewed the syllable concept and/or the principle of the number of vowel sounds equaling the number of syllables. Other rules related to syllables included: the rule for syllable division where a vowel is followed by two or more consonants; the rule for syllable division where a vowel is followed by a single consonant; the rule for syllable division where the ending has been added to a familiar word; and the rule of common syllables such as: com-, be-, pre-, -ble, -ment, -less, -able, -ty.

The classroom practitioner determined the length of time to develop each rule and skill, however, mastery of the rationale of the rules was a major goal of this highly sophisticated approach. With this particular approach, the child became more concerned with an understanding of the rules of reading than the process of reading itself.

The reading lesson was devoted to a large degree to listening, oral speech, and writing with a de-emphasis on practice in reading. When children were permitted to read a short story (three to ten pages) they become concerned with skills to cope with meaning difficulties independently. These skills included: (1) using context to determine the meaning of a strange word; (2) using pictures as an aid to getting the meaning of an unfamiliar word; (3) choosing which of several meanings a word may have that will best fit the context; (4) determining the meaning of non-literal language--metaphors; (5) determining the meaning of non-literal language--idioms; (6) using punctuation marks as an aid to getting meaning; (7) visualizing the setting, events, and characters in a selection; (8) reading special type; and (9) using the dictionary to determine the meaning of a strange word or a new meaning for a familiar word.

The high rationale approach had no accommodations available for individual differences. All children of each classroom were taught the same skills from the same textbook at the same time.

2. THE LOW RATIONALE

The low rationale approach is a less sophisticated approach than the high rationale approach. The low rationale approach does not stress an understanding of the rules of reading in teaching children to read. The underlying principles of this particular approach would include the following conditions:

1. The child does not need to know the rationale of reading in order to be able to read with understanding.
2. The teaching-learning relationship is greatly enhanced when a bond of confidence is established between the teacher and the learner.
3. The child must have an opportunity to read material at appropriate levels of difficulty, not a single book.
4. The child should be able to select material of his interest level for reading.
5. Every child should have a chance to practice reading during every scheduled reading period.

The low rationale approach is based in part in the history of reading of the English language. When reading instruction was first provided it was exclusively on an individual basis. Children were taught as individuals by a scribe, a priest, a tutor, or some member of his family. Even in our early "Dame Schools" in America, each child was taught individually and progressed at his own rate.

The low rationale approach departs from the historical at this point by de-emphasizing the rationale but retaining the practice. Thus no attempt is made to give the reader the reason why of how to read by means of rules and lists of skills. The only rules of reading established were those relating to performance.

As the reading performance becomes more sophisticated, then the rationale of reading will become more sophisticated in the instruction of reading.

For classes in this study using the low rationale approach, no reading groups were established. Each child used the technique of self-selection of reading material which permitted an expanded exposure to printed materials. The reading skills taught were teacher determined during an individual conference.

The low rationale approach permitted children to become so engrossed in reading that the child will not be consciously aware of the skills he is using. The classroom teacher worked with those children who appeared to be having difficulty; however, no formal group instructional lessons were taught during the reading period. This approach was intended to give the child an opportunity to use his prior experience in learning by reading something of an interest to him at his level of learning; however, many skills will not be taught. Every child had scheduled planned conferences with the classroom teacher.

The planned conference was a four to ten minute private tutorial meeting which enabled the teacher to be aware of the child's individual reading characteristics. Each teacher selected the best place in her room for this conference, some at the desk, some in back of the room, and others in a rear corner. Each teacher attempted to select a place where both teacher and child could talk or whisper and not be heard by the rest of the class.

Once the environment of privacy was established, each teacher invited each student one at a time for a planned conference. The student usually brought the book he was reading with him. The teacher's greeting would be, "How is everything going?" This expression was used to start the child to talking. The teacher's next question was selected from the Reading Check List. (See Appendix) As the teacher listened to each child, she was not as concerned with what the child told her as she was that the child told her something. Upon the child's achieving enough confidence in the teacher to tell her something, the teacher then demonstrated confidence in the child by explaining the mysteries of reading by a low rational approach.

The low rationale approach identified some words as looking alike at their beginning, at their middle, and at their end. The next level of sophistication in this approach identified some words as sounding alike at their beginning, at their middle, and at their end. For students somewhat more advanced a higher sophistication was presented, some words sound alike but look different and some words look alike but sound different. (See Appendix Low Rationale Sample Word List.)

The child was asked to look for words in the book he was reading that looked or sounded alike at their beginning, at their middle, or at their end, depending on the level of sophistication of his performance development.

Generally six to twelve words were used as examples during the conference. Sometimes the children wanted to read to the teacher privately and was permitted to do so.

When the teacher created the teachable moment with the child, by establishing a bond of confidence, the teacher's guidance was then given.

Teachers used the Gunning Fog Index of Readability (see Appendix) to determine the reading level of the material the child had selected. When the material was above the instructional level of the child, the teacher attempted to find other materials in the same interest area with a lower reading level for the child. Each classroom had a minimum of two hundred books; however, more important than numbers of books was the range of appropriate interest areas at reading levels the children were able to read.

3. HIGH RATIONALE INDIVIDUAL APPROACH

The high rationale individual approach is an approach designed for this study as a control treatment. The techniques and procedures of the high rationale individual approach were adapted from the high rationale approach and the low rationale approach. The underlying principles of this particular approach would include the following conditions:

1. The child must know the rationale of reading to be able to read with understanding.

2. The teacher-learning relationship is greatly enhanced when a bond of confidence is established between the teacher and the learner.

3. The child must have an opportunity to read material at appropriate levels of difficulty, not one single book.

4. The child should be able to select material of his interest level for reading.

5. Every child should have a chance to practice reading during every scheduled reading period.

E. Measurement instruments.

The Gates-MacGinitie Reading Tests, Survey E and the Lorge-Thorndike Intelligence Tests were used to provide data of the study. The selection of the Gates-MacGinitie Reading Tests was determined by: (a) ability to measure reading achievement in the areas vocabulary, comprehension, and speed and accuracy; (b) appropriate measure to test reading attainment of seventh grade children, and (c) the improvements in this test over the Gates Reading Survey. The results obtained from Survey E form 1 served as the pre-test for the study. The results obtained from Survey E form 2 served as the post-test for the study.

In October, at the beginning of the second nine week term of the school year, Survey E form 1 of the Gates-MacGinitie Reading Test was given to each student who was a member of a participating classroom.

In March, at the end of the nine week grading period, each student who was a member of a participating classroom was given the Gates-MacGinitie Reading Tests, Survey E form 2.

The 1965 edition of the Gates-MacGinitie Reading Test Survey E was a test battery designed to measure the basic fundamentals of vocabulary, comprehension, and speed and accuracy. Arthur I. Gates and Walter H. MacGinitie have authored this test and established norms on a national basis.

The Lorge-Thorndike Intelligence Tests were administered to all students in the twenty-seven classrooms before the treatment procedures were initiated. Results of the reading achievement pre- and post-test scores were analyzed with the intelligence score as a variable to determine if intelligence was a significant factor in the rationale approaches to teaching reading.

F. Research design and statistical.

The design of this study included all seventh grade students enrolled in twenty-seven classrooms selected at random in the junior high schools of the Las Cruces Public Schools, Las Cruces, New Mexico. All students from each selected classroom of the project were pre-tested and post-tested. Collected data was compared by use of the statistical technique known as analysis of covariance. The statistical data was processed at the Computer Center at New Mexico State University on the CDC 3300 computer.

The design presented in Table 2, known as a nested design, was selected by the investigator because of its effectiveness in partitioning the treatment effects, the group effects, and the individual differences. The nested design is the unique method of working with subjects-within-classrooms-within-treatments-within-schools..

A separate sub-analysis of each ethnic group was processed within the design of Table 2. The data from all students with Spanish Surnames was processed to determine differences among the treatments within the ethnic group. The data from all other students was processed to determine differences among the treatments within the anglo ethnic group.

In order that the reader may study the experimental procedures, Table 3 is presented. It can be seen from an examination of this table how each set of nine classrooms was organized relative to the treatment received.

A close examination of Table 3 reveals the classrooms 1 - 9 received formal group instruction in reading with a high rationale approach

TABLE 2

DESIGN FOR READING STUDY

S_1			S_2			S_3		
T_1	T_2	T_3	T_1	T_2	T_3	T_1	T_2	T_3
C	C	C	C	C	C	C	C	C
111	121	131	211	221	231	311	321	331
11101	12101	13101	21101	22101	23101	31101	32101	33101
11102	12102	13102	21102	22102	23102	31102	32102	33102
11103	12103	13103	21103	22103	23103	31103	32103	33103
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
111N	121N	131N	211N	221N	231N	311N	321N	331N
C	C	C	C	C	C	C	C	C
112	122	132	212	222	232	312	322	332
11201	12201	13201	21201	22201	23201	31201	32201	33201
11202	12202	13202	21202	22202	23202	31202	32202	33202
11203	12203	13203	21203	22203	23203	31203	32203	33203
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
112N	122N	132N	212N	222N	232N	312N	322N	332N
C	C	C	C	C	C	C	C	C
113	123	133	213	223	233	313	323	333
11301	12301	13301	21301	22301	23301	31301	32301	33301
11302	12302	13302	21302	22302	23302	31302	32302	33302
11303	12303	13303	21303	22303	23303	31303	32303	33303
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
113N	123N	133N	213N	223N	233N	313N	323N	333N

TABLE 3

SUMMARY OF EXPERIMENTAL PROCEDURES

Classroom	Treatment	Pre-Test X	Post-Test Y
1 2 3 4 5 6 7 8 9	A. Needs rationale B. Group instruction C. Single text D. Teacher determine experienced E. Little or no practice in reading during class.	The Gates-MacGinitie Reading Test Survey E1 was administered to all seventh grade students enrolled in the twenty-seven selected classrooms of the study in October at the beginning of the second eight week term of school. These tests were used to measure the initial knowledge possessed by each student in reading in three areas:vocabulary, comprehension, and speed and accuracy.	The Gates-MacGinitie Reading Test Survey E2 was administered to all seventh grade students enrolled in the twenty-seven selected classrooms of the study in March at the end of the nine week grading period.
10 11 12 13 14 15 16 17 18	A. Needs rationale B. Individual instruction C. Multi-texts D. Teacher/pupil determined experiences E. Practice in reading during every class	The Lorge-Thorndike Intelligence Test was administered to all students in this study.	These tests were used to measure the gains, if any, of achievement in reading in three areas; vocabulary, comprehension, and speed and accuracy.
19 20 21 22 23 24 25 26 27	A. Does not need rationale B. Individual instruction C. Multi-text D. Pupil determined experiences E. Practice in reading during every class		

to reading. Classrooms 10 - 18 received high rationale individual approach to reading and classrooms 19-27 received low rationale approach to reading. Further inspection of Table 3 shows that the pre-test (X) included the three sub-tests of the Gates-MacGinitie Reading Tests and the post-test (Y) was a different form of the same test used in the pre-test situation and was administered to all seventh grade students enrolled in classrooms that participated in the study. All students received the Lorge-Thorndike Intelligence Tests.

Treatment one consisted of a fifty minute scheduled reading lesson taught by the techniques and the procedures of the high rationale approach.

Treatment two consisted of fifty minute scheduled reading lessons taught by the techniques and procedures of the high rationale individual approach.

Treatment three consisted of fifty minute scheduled reading lessons taught by the techniques and procedures of the low rationale approach.

In order that the reader may study the student and the teacher involvement within the treatment groups Table 4 is presented. It can be noted from an examination of this table how students and teachers were involved in each treatment groups.

A close examination of Table 4 reveals that in Treatment I both the student's and the teacher's time were devoted to fifty minutes of formal group instruction of techniques and procedures of the high rationale approach. In Treatment II, fifty minutes of the student's time was allotted to individual instruction and free selection of reading materials. The teacher was assigned to thirty-five minutes of planned conferences and fifteen minutes

TABLE 4

STUDENT AND TEACHER INVOLVEMENT IN TREATMENT GROUPS

Treatment I	Treatment II		Treatment III	
High Rationale Approach	High Rationale Individual Approach		Low Rationale Approach	
50 minutes of student's time devoted to formal group instruction with a high rationale approach.	50 minutes of student's time devoted to individual instruction and free selection of reading material.		50 minutes of student's time devoted to low rationale approach in reading.	
50 minutes of teacher's time devoted to formal group instruction with a high rationale approach.	35 minutes of the teacher's time devoted to planned conferences with a high rationale emphasis.	15 minutes of the teacher's time devoted to informal guidance activities at the reading shelf.	35 minutes of the teacher's time devoted to planned conferences.	15 minutes of the teacher's time to informal guidance activities at the reading shelf.

to informal guidance activities at the reading shelf. The planned conferences stressed the high rationale approach with this treatment. In Treatment III, fifty minutes of the student's time was allotted to low rationale approach in reading, except for one or two planned conferences each week. The teacher devoted thrity-five minutes of time to the planned conferences with fifteen minutes devoted to informal guidance activities at the reading shelf.

IV. FINDINGS

This chapter will state the findings related to the objectives of the study as outlined in a previous chapter of this report. These findings are based upon the results of the subjects measured behavior by the Gates-MacGinitie Reading Test Survey and the Lorge Thorndike Intelligence Test.

A. Objective I

To determine differences among seventh grade children reading achivement who were taught by different rationale approaches to reading.

To answer Objective I, it was necessary to secure data related vocabulary, comprehension and speed and accuracy from the total sample population of this project.

Analysis of covariance was used to test differences of vocabulary among three treatment groups. Table 5 shows the degrees of freedom, sum of squares and mean squares of this analysis of vocabulary. As indicated in Table 5 the computed F value is 2.978. Table 6 shows the needed F value for a .05 level of confidence is 6.94. No significant difference was found.

Comprehension scores among three treatment groups were tested for differences by analysis of covariance. Table 7 displays the degrees of freedom, sum of squares and mean squares of this analysis of comprehension. Note for treatments with 2 degrees of freedom a sum of square of 204.31 and a mean square of 102.57. As indicated in Table 8 the computed F value is .709 and a needed F value of 6.94 for a .05 level of confidence. No significant difference was found.

To test the difference of speed and accuracy among the three groups, analysis of covariance was used. A mean was computed for treatment of 61.25 from a sum of squares of 122.49 with 2 degrees of freedom as indicated in Table 9. Table 10 states a computed F value for treatments of .894 and a F value of 6.94 is needed for a .05 level of confidence. No significant difference was found.

TABLE 5

ANALYSIS OF COVARIANCE OF THE OBTAINED VOCABULARY SCORES FROM THE TOTAL SAMPLE POPULATION

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Schools	2	325.45	162.72
Classes/Schools	6	704.98	117.50
Treatments	2	564.12	282.06
Schools Treatments	4	378.67	94.67
Classes/Schools Treatments	12	1,141.91	95.16
Regression on Pre-Test	1	5,151.17	5,151.17
Individuals/Classes/Schools Treatments	570	9,016.44	15.82
Total	597	29,548.69	

Note:

F for Schools = 162.72/117.50 = 1.385
F for Classes/Schools = 117.50/282.06 = .417
F for Treatments = 282.06/94.67 = 2.978
F for Schools Treatments = 94.67/95.16 = .995
F for Classes/Schools Treatments = 95.16/15.82 = 6.020
F for Individuals/Classes/Schools Treatments = 5151.17/15.81 = 325.817

TABLE 6

VALUES OF F FOR VOCABULARY SCORES OBTAINED FROM THE TOTAL SAMPLE POPULATION

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Schools	2 6	1.385	5.14
Classes/Schools	6 2	.417	19.33
Treatments	2 4	2.978	6.94
Schools Treatments	4 12	.995	3.26
Classes/Schools Treatments	12 570	6.020*	1.77
Individuals/Classes/Schools Treatments	1 570	325.817*	3.86

*Significant beyond the .01 level.

TABLE 7

ANALYSIS OF COVARIANCE OF THE OBTAINED COMPREHENSION SCORES FROM THE TOTAL SAMPLE POPULATION

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Schools	2	388.78	194.39
Classes/Schools	6	357.61	59.60
Treatments	2	204.31	102.57
Schools Treatments	4	579.30	144.83
Classes/Schools Treatments	12	1,542.09	128.51
Regression on Pre-Test	1	14,045.80	14,045.80
Individuals/Classes/Schools Treatments	570	15,776.57	27.68
Total	597	62.940.03	

Note:

F for Schools = 194.39/59.60 = 3.288
F for Classes/Schools = 59.60/102.57 = .584
F for Treatments = 102.57/144.83 = .709
F for Schools Treatments = 144.83/128.51 = 1.131
F for Classes/Schools Treatments = 128.51/27.68 = 4.64
F for Individuals/Classes/Schools Treatments = 14.045.79/27.68 = 520.214

TABLE 8

VALUES OF F FOR COMPREHENSION SCORES OBTAINED FROM THE TOTAL SAMPLE POPULATION

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Schools	2 6	3.288	5.14
Classes/Schools	6 2	.584	19.33
Treatments	2 4	.709	6.94
Schools Treatments	4 12	1.131	3.26
Classes/Schools Treatments	12 570	4.64*	1.77
Individuals/Classes/Schools Treatments	1 570	520.214*	3.86

*Significant beyond the .01 level.

TABLE 9

ANALYSIS OF COVARIANCE OF THE OBTAINED SPEED AND ACCURACY SCORES FROM THE TOTAL SAMPLE POPULATION

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Schools	2	109.92	54.96
Classes/Schools	6	217.44	36.24
Treatments	2	122.49	61.25
Schools Treatments	4	273.90	68.47
Classes/Schools Treatments	12	304.28	25.36
Regression on Pre-Test	1	2,035.63	2,035.63
Individuals/Classes/Schools Treatments	570	4,587.38	8.048
Total	597	10,288.62	

Note:

F for Schools = 54.96/36.24 = 1.516
F for Classes/Schools = 36.24/61.25 = .591
F for Treatments = 61.25/68.47 = .894
F for Schools Treatments = 68.47/25.36 = 2.700
F for Classes/Schools Treatments = 25.36/8.048 = 3.156
F for Individuals/Classes/Schools Treatments = 2,035.63/8.048 = 252.752

TABLE 10

VALUES OF F FOR SPEED AND ACCURACY SCORES OBTAINED FROM THE TOTAL SAMPLE POPULATION

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Schools	2 6	1.516	5.14
Classes/Schools	6 2	.591	19.33
Treatments	2 4	.894	6.94
Schools Treatments	4 12	2.700	3.26
Classes/Schools Treatments	12 570	3.156*	1.77
Individuals/Classes/Schools Treatments	1 570	252.752*	3.86

*Significant beyond the .01 level.

B. Objective II

To determine differences among high IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

In order to meet Objective II it was necessary to select only those children in this study who had IQ scores of 110 or above. All of these children's scores in vocabulary, comprehension, and speed and accuracy were tested by analysis of covariance.

To test for differences among IQ scores and reading vocabulary scores, a sum of squares was computed at 34.98 and a mean square was computed at 17.49 as stated in Table 11. A level of confidence of .05, Table 12 shows a F value of 5.14 is needed, however the computed F value was only .729. No significant difference was found.

Comprehension scores of high IQ children were tested for differences and produced a mean square of 35.18 as shown in Table 13. As indicated in Table 14 the computed F value was .733 with a F value of 5.14 needed for a .05 level of confidence. No significance difference was found.

As indicated in Table 15, scores of speed and accuracy were tested among high IQ scores for differences. A sum of squares of 1.43 was computed with 2 degrees of freedom to produce a mean square of .714. Table 16 shows a computed F value of .101 and a F value of 5.14 is needed for a .05 level of confidence. No significant difference was found.

TABLE 11

ANALYSIS OF COVARIANCE FOR VOCABULARY SCORES FROM THOSE SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	34.98	17.49
Classes/Treatments	6	144.24	24.04
Regression on Pre-Test	1	1,954.10	1,954.10
Individuals/Classes/Treatments	160	2,586.75	16.17
Total	169	5,251.62	

Note:

F for Treatments = 17.49/24.04 = .729
F for Classes/Treatments = 24.04/16.17 = 1.502
F for Individuals/Classes/Treatments = 1,954.10/16.17 = 122.125

TABLE 12

VALUE OF F FOR VOCABULARY SCORES OBTAINED FROM THOSE SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	.729	5.14
Classes/Treatments	6 160	1.502	2.15
Individuals/Classes/Treatments	1 160	122.125	3.90

TABLE 13

ANALYSIS OF COVARIANCE OF THE OBTAINED COMPREHENSION FROM THOSE SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	70.35	35.18
Classes/Treatments	6	290.93	48.49
Regression on Pre-Test	1	3,181.13	3,181.13
Individuals/Classes/Treatments	160	4,278.05	26.74
Total	169	8,859.21	

Note:

F for Treatments = 35.18/48.49 = .733
F for Classes/Treatments = 48.49/26.74 = .015
F for Individuals/Classes/Treatments = 3,181.13/26.74 = 119.139

TABLE 14

VALUES OF F FOR COMPREHENSION SCORES OBTAINED FROM THOSE SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees Freedom	Computed F Value	F Value of .05
Treatments	2 6	.733	5.14
Classes/Treatments	6 160	.015	2.16
Individuals/Classes/Treatments	1 160	119.139*	3.90

*Significant beyond the .01 level.

TABLE 15

ANALYSIS OF COVARIANCE OF THE OBTAINED SPEED AND ACCURACY SCORES FROM THOSE SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	1.43	.714
Classes/Treatments	6	43.68	7.28
Regression on Pre-Test	1	601.15	601.15
Individuals/Classes/Treatments	160	1,491.83	9.32
Total	169	2,180.09	

Note:

F for Treatments = .714/7.28 = .101
F for Classes/Treatments = 7.28/9.32 = .809
F for Individuals/Classes/ Treatments = 601.15/9.32 = 66.777

TABLE 16

VALUES OF F FOR SPEED AND ACCURACY SCORES OBTAINED FROM THOSE SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	.101	5.14
Classes/Treatments	6 160	.809	2.16
Individuals/Classes/Treatments	1 160	66.777*	3.90

*Significant beyond the .01 level.

C. Objective III

To determine differences among average IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

It was a requirement of Objective III to select only those children in this study who had IQ scores between 91 and 109 to meet this objective. Reading scores were then tested of these children for difference in the area of vocabulary, comprehension, and speed and accuracy.

Analysis of covariance was used to test difference of vocabulary with a computed mean square of 37.24. As indicated in Table 17, the mean square was computed from the sum of squares 74.48 and the degrees of freedom 2. Table 18 shows the computed F value of .799 and a needed F value of 5.14 for a .05 level of confidence. No significant difference was found.

To test the differences in comprehension scores of the average IQ subjects, Table 19 shows a sum of squares of 15.11 and a mean square of 7.55. Table 20 indicates a needed F value of 5.14 for a .05 level of confidence and a computed F value of .160. No significant difference was found.

Table 21 shows computed data related to speed and accuracy of average IQ children. The reader will note a sum of squares of 24.94 and a mean of 12.47. Table 22 indicates a computed F value of .767 and a needed computed F value of 5.14 for a .05 level of confidence. No significant difference was found.

TABLE 17

ANALYSIS OF COVARIANCE OF THE OBTAINED VOCABULARY SCORES FROM THOSE SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	74.48	37.24
Classes/Treatments	6	279.52	46.59
Regression on Pre-Test	1	1,101.30	1,101.30
Individuals/Classes/Treatments	278	3,721.02	13.38
Total	287	5,551.75	

Note:

F for Treatments = 37.24/46.59 = .799
F for Classes/Treatments = 46.59/13.38 = 3.481
F for Individuals/Classes/Treatments = 1,101.30/13.38 = 82.211

TABLE 18

VALUES OF F FOR VOCABULARY SCORES OBTAINED FROM THOSE SUBJECTS WHOSE IQ SCORES WERE 91 TO 109

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	.799	5.14
Classes/Treatments	6 278	3.481*	2.13
Individuals/Classes/Treatments	1 278	82.211*	3.88

*Significant beyond the .01 level.

TABLE 19

ANALYSIS OF COVARIANCE OF THE OBTAINED COMPREHENSION SCORES FROM THOSE SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments		15.11	7.55
Classes/Treatments	6	283.52	47.25
Regression of Pre-Test	1	5,757.89	5,757.89
Individuals/Classes/Treatments	278	8,959.11	32.23
Total	287	15,541.78	

Note:

F for Treatments = 7.55/47.25 = .160
F for Classes/Treatments = 47.25/32.23 = 1.467
F for Individuals/Classes/Treatments = 5,757.89/32.23 = 178.621

TABLE 20

VALUES OF F FOR COMPREHENSION SCORES OBTAINED FROM THOSE SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	.160	5.14
Classes/Treatments	6 278	1.467	2.17
Individuals/Classes/Treatments	1 278	178.621*	3.92

*Significant beyond the .01 level.

TABLE 21

ANALYSIS OF COVARIANCE OF THE OBTAINED SPEED AND ACCURACY SCORES FROM THOSE SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SXORES OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	24.94	12.47
Classes/Treatments	6	97.62	16.27
Regression on Pre-Test	1	642.01	642.01
Individuals/Classes/Treatments	278	2,062	7.42
Total			

Note:

F for Treatments = 12.47/16.27 = .767
F for Classes/Treatments = 16.27/7.42 = 2.192
F for Individuals/Classes/Treatments = 642.01/7.42 = 86.53

TABLE 22

VALUES OF F FOR SPEED AND ACCURACY SCORES OBTAINED FROM THOSE SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	.767	5.14
Classes/Treatments	6 278	2.192	2.17
Individuals/Classes/Treatments	1 278	86.53*	3.92

*Significant beyond the .01 level.

D. Objective IV

To determine differences among low IQ seventh grade children reading achievement who were taught by different rationale approaches to reading.

To answer Objective IV, it was a requirement to select only those subjects who had IQ scores 90 or below in the sample population of this project. The reading scores in vocabulary, comprehension, and speed and accuracy of these subjects with IQ score of 90 or below were then tested for differences.

Table 23 records variation of vocabulary scores with a mean square of 16.35, computed from a sum of squares of 32.69 with 2 degrees of freedom. As indicated on Table 24, a F value of 5.14 is needed for a .05 level of confidence and the computed F value was .457. No significant difference was found.

When variation of comprehension scores were tested for differences, a mean square was computed of 34.91 from a sum of squares of 69.83 with 2 degrees of freedom as shown in Table 25. A computed F value of 1.760 was produced with a needed F value of 5.14 for a level of confidence of .05, as stated in Table 26. No significant difference was found.

To test the differences of speed and accuracy scores of low IQ subjects, Table 27 shows a sum of squares of 20.18 with a mean square of 10.09. Table 28 indicates a needed F value of 5.14 for a .05 level of confidence and a computed F value of .513. No significant difference was found.

TABLE 23

ANALYSIS OF COVARIANCE OF THE OBTAINED VOCABULARY SCORES FROM THOSE SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	32.69	16.35
Classes/Treatments	6	214.28	35.71
Regression on Pre-Test	1	413.46	413.46
Individuals/Classes/Treatments	130	1,623.17	12.49
Total	139	2,393.00	

Note:

F for Treatments = 16.35/35.71 = .457
F for Classes/Treatments = 35.71/12.49 = 2.861
F for Individuals/Classes/Treatments = 413.46/12.49 = 3.311

TABLE 24

VALUES OF F FOR VOCABULARY SCORES OBTAINED FROM THOSE SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Schools	2 6	.457	5.14
Classes/Treatments	6 130	2.860	2.17
Individuals/Classes/Treatments	1 130	3.311	3.92

TABLE 25

ANALYSIS OF COVARIANCE OF THE OBTAINED COMPREHENSION SCORES FROM THOSE SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Squares
Treatments	2	69.83	34.91
Classes/Treatments	6	118.99	19.83
Regression on Pre-Test	1	1,702.60	1,702.60
Individuals/Classes/Treatments	130	3,220.94	24.78
Total	139	5,895.14	

Note:

F for Treatments = 34.91/19.83 = 1.760
F for Classes/Treatments = 19.83/24.78 = .801
F for Individuals/Classes/Treatments = 1,702.60/24.78 = 68.746

TABLE 26

VALUES OF F FOR COMPREHENSION SCORES OBTAINED FROM THOSE SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	1.760	5.14
Classes/Treatments	6 130	.801	2.17
Individuals/Classes/Treatments	1 130	68.746*	3.92

*Significant beyond the .01 level.

TABLE 27

ANALYSIS OF COVARIANCE FOR SPEED AND ACCURACY SCORES OBTAINED FROM THOSE SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	20.18	10.09
Classes/Treatments	6	117.85	19.64
Regression on Pre-Test	1	427.44	427.44
Individuals/Classes/Treatments	130	1,076.94	8.28
Total	139	1,821.97	

Note:

F for Treatments = 10.09/19.64 = .513
F for Classes/Treatments = 19.64/8.28 = 2.378
F for Individuals/Classes/Treatments = 427.44/8.28 = 51.581

TABLE 28

VALUES OF F FOR SPEED AND ACCURACY SCORES OBTAINED FROM THOSE SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	.513	5.14
Classes/Treatments	6 130	2.378	2.17
Individuals/Classes/Treatments	1 130	51.581*	3.92

*Significant beyond the .01 level.

E. Objective V

To determine differences among Anglo-American high IQ seventh grade children reading achievement who were taught by different rationale approaches to reading.

To meet the requirements of Objective V, it was necessary to select only those subjects with Anglo-American surnames and IQ score of 110 or above. Reading scores which included vocabulary, comprehension, and speed and accuracy were tested for differences by analysis of covariance.

Vocabulary scores tested produced a mean square of 5.16 from a sum of square of 10.32 and 2 degrees of freedom as stated in Table 29. Table 30 shows a computed F value of .218 with a needed F value of 5.14 for a .05 level of confidence. No significant difference was found.

To test the comprehension scores, Table 31 shows a mean square of 22.17 with a sum of squares of 44.34 and 2 degrees of freedom. A needed F value of 5.14 for a level of confidence of .05 was not reached with only a computed F value of .617, as indicated in Table 32. No significant difference was found.

As indicated in Table 33, the scores from the speed and accuracy test produced a mean square of 14.25 from a sum of squares of 28.49 with 2 degrees of freedom. A computed F value of 1.331 as shown in Table 34 did not reach the needed F value of 5.14 for a .05 level of confidence. No significant difference was found.

TABLE 29

ANALYSIS OF COVARIANCE OF THE OBTAINED VOCABULARY SCORES FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	10.32	5.16
Classes/Treatments	6	142.06	23.68
Regression on Pre-Test	1	1,570.33	1,570.33
Individuals/Classes/Treatments	124	2,177.82	17.56
Total	133	4,212.87	

Note:

F for Treatments = 5.16/23.68 = .218
F for Treatments = 23.68/17.56 = 1.348
F for Individuals/Classes/Treatments = 1,570.33/17.56 = 89.419

TABLE 30

VALUES OF F FOR VOCABULARY SCORES OBTAINED FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value Of .05
Treatments	2 6	.218	5.14
Classes/Treatments	6 124	1.348	2.17
Individuals/Classes/Treatments	1 124	89.419*	3.92

*Significant beyond the .01 level.

TABLE 31

ANALYSIS OF COVARIANCE OF THE OBTAINED COMPREHENSION SCORES FROM THOSE ANGLO-AMERICAN IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	44.34	22.17
Classes/Treatments	6	215.30	35.88
Regression on Pre-Test	1	2,362.51	2,362.51
Individuals/Classes/Treatments	124	3,476.00	28.03
Total	133	6,947.37	

Note:

F for Treatments = 22.17/35.88 = .617
F for Classes/Treatments = 35.88/28.03 = 1.280
F for Individuals/Classes/Treatments = 2,362.51/28.03 = 84.212

TABLE 32

VALUES OF F FOR COMPREHENSION SCORES OBTAINED FROM THOSE
ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	.617	5.14
Classes/Treatments	6 124	1.280	2.17
Individuals/Classes/Treatments	1 124	84.212*	3.92

*Significant beyond the .01 level.

TABLE 33

ANALYSIS OF COVARIANCE OF THE OBTAINED SPEED AND ACCURACY SCORES FROM THOSE ANGLO-AMERICAN WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	28.49	14.25
Classes/Treatments	6	64.21	10.70
Regression on Pre-Test	1	613.30	613.30
Individuals/Classes/Treatments	124	1,223.51	9.87
Total	133	1,929.97	

Note:

F for Treatments = 14.25/10.70 = 1.331
F for Classes/Treatments = 10.70/9.87 = 1.085
F for Individuals/Classes/Treatments = 613.30/9.87 = 62.155

TABLE 34

VALUES OF F FOR SPEED AND ACCURACY SCORES OBTAINED FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	1.331	5.14
Classes/Treatments	6 124	1.085	2.17
Individuals/Classes/Treatments	1 124	62.155*	3.92

*Significant beyond the .01 level.

F. Objective VI

To determine differences among Anglo-American average IQ seventh grade children reading achievement who were taught by different rationale approaches to reading.

In order to meet Objective VI, only those students with Anglo-American surnames with IQ scores between 91-109 were selected from the sample population. These subjects reading test scores were then analyzed in the area of vocabulary, comprehension, and speed and accuracy.

Vocabulary scores tested produced a mean square of 18.20 from a sum of squares of 36.41 and 2 degrees of freedom as stated in Table 35. Table 36 shows a computed F value of .949 with a needed F value of 5.14 for a .05 level of confidence. No significant difference was found.

Testing the comprehension scores in Table 37 revealed a mean square of 18.72 with a sum of squares of 37.44 and 2 degrees of freedom. Table 38 shows a computed F value of .480 with a needed F value of 5.14 for a .05 level of confidence. No significant difference was found.

An examination of Table 39 which tested the speed and accuracy scores, reveals a mean square of 19 derived from a sum of squares of 38.01 with 2 degrees of freedom. The computed F value is seen in Table 40. The F value is 2.226 with a value of 5.14 required at the .05 level of significance. No significant difference was found.

TABLE 35

ANALYSIS OF COVARIANCE OF THE OBTAINED VOCABULARY SCORES FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	36.41	18.20
Classes/Treatments	6	115.06	19.18
Regression on Pre-Test	1	490.13	490.13
Individuals/Classes/Treatments	103	1,256.38	12.20
Total	112	2,036.73	

Note:

F for Treatments = 18.20/19.18 = .949
F for Classes/Treatments = 19.18/12.20 = 1.572
F for Individuals/Classes/Treatments = 490.13/12.20 = 40.181

TABLE 36

VALUES OF F FOR VOCABULARY SCORES OBTAINED FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	.949	5.14
Classes/Treatments	6 103	1.572	2.19
Individuals/Classes/Treatments	1 103	40.181*	3.94

*Significant beyond the .01 level.

TABLE 37

ANALYSIS OF COVARIANCE OF THE OBTAINED COMPREHENSION SCORES FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	37.44	18.72
Classes/Treatments	6	233.82	38.97
Regression on Pre-Test	1	2,283.10	2,283.10
Individuals/Classes/Treatments	103	3,835.42	37.24
Total	112	6,639.96	

Note:

F for Treatments = 18.72/38.97 = .480
F for Classes/Treatments = 38.97/37.24 = 1.046
F for Individuals/Classes/Treatments = 2,283.10/37.24 = 61.347

TABLE 38

VALUES OF F FOR COMPREHENSION SCORES OBTAINED FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	.480	5.14
Classes/Treatments	6 103	1.046	2.19
Individuals/Classes/Treatments	1 103	61.347*	3.94

*Significant beyond the .01 level.

TABLE 39

ANALYSIS OF COVARIANCE OF THE OBTAINED SPEED AND ACCURACY SCORES FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	38.01	19.00
Classes/Treatments	6	51.19	8.53
Regression on Pre-Test	1	327.27	327.27
Individuals/Classes/Treatments	103	670.47	6.51
Total	112	1,092.32	

Note:

F for Treatments = 19.00/8.53 = 2.226
F for Classes/Treatments = 8.53/6.51 = 1.310
F for Individuals/Classes/Treatments = 327.27/6.51 = 50.249

TABLE 40

VALUES OF F FOR SPEED AND ACCURACY SCORES OBTAINED FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	2.226	5.14
Classes/Treatments	6 103	1.310	2.19
Individuals/Classes/Treatments	1 103	50.249*	3.94

*Significant beyond the .01 level.

G. Objective VII

To determine differences among Anglo-American low IQ seventh grade children reading achievement who were taught by different rationale approaches to reading.

Objective VII was met by selecting only those subjects with Anglo-American surnames and IQ scores of 90 or below. The test for differences in vocabulary, comprehension, and speed and accuracy was analysis of covariance.

To test for differences among IQ scores and reading vocabulary scores, a sum of squares of 40.37 was computed. The mean square was at 20.18 as stated in Table 41. Table 42 reveals a computed F value of 1.289 with a required F value of 5.14 to be significant at the .05 level of conficence.

Comprehension scores of low IQ children were tested for differences and produced a mean square of 22.59 as shown in Table 43. As indicated in Table 44, the computed F value was .833 with an F value of 5.14 needed for a .05 level of confidence. No significant difference was found.

A review of Table 45 reveals scores of speed and accuracy tested among low IQ scores for differences. A sum of square of 38.51 was computed with 2 degrees of freedom to produce a mean square of 19.25 Table 46 shows a computed F value of 2.342 and an F value of 5.14 is needed for a .05 level of confidence. No significant difference was found.

TABLE 41

ANALYSIS OF COVARIANCE OF THE OBTAINED VOCABULARY SCORES FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	40.37	20.18
Classes/Treatments	6	93.92	15.65
Regression on Pre-Test	1	53.59	53.59
Individuals/Classes/Treatments	18	321.24	17.85
Total	27	565.86	

Note:

F for Treatments = 20.18/15.65 = 1.289
F for Classes/Treatments = 15.65/17.85 = .877
F for Individuals/Classes/Treatments = 53.59/17.85 = 3.003

TABLE 42

VALUES OF F FOR VOCABULARY SCORES OBTAINED FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	1.289	5.14
Classes/Treatments	6 18	.877	2.66
Individuals/Classes/Treatments	1 18	3.003	4.41

TABLE 43

ANALYSIS OF COVARIANCE OF THE OBTAINED COMPREHENSION SCORES FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	45.18	22.59
Classes/Treatments	6	16.28	2.71
Regression on Pre-Test	1	187.51	187.51
Individuals/Classes/Treatments	18	593.69	32.98
Total	27	959.86	

Note:

F for Treatments = 22.59/2.71 = .833
F for Classes/Treatments = 2.71/32.98 = .082
F for Individuals/Classes/Treatments = 187.51/32.98 = 5.686

TABLE 44

VALUES OF F FOR COMPREHENSION SCORES OBTAINED FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom		Computed F Value	F Value of .05
Treatments	2	6	.833	5.16
Classes/Treatments	6	18	.082	2.66
Individuals/Classes/Treatments	1	18	5.686	4.41

TABLE 45

ANALYSIS OF COVARIANCE OF THE OBTAINED SPEED AND ACCURACY SCORES FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	38.51	19.25
Classes/Treatments	6	49.32	8.22
Regression on Pre-Test	1	63.21	63.21
Individuals/Classes/Treatments	18	174.82	9.71
Total	27	303.25	

Note:

F for Treatments = 19.25/8.22 = 2.342
F for Classes/Treatments = 8.22/9.71 = .846
F for Individuals/Classes/Treatments = 63.21/9.71 = 6.507

TABLE 46

VALUES OF F FOR SPEED AND ACCURACY SCORES OBTAINED FROM THOSE ANGLO-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	2.342	5.14
Classes/Treatments	6 18	.846	2.66
Individuals/Classes/Treatments	1 18	6.507	4.41

H. Objective VIII

To determine differences among Spanish-American high IQ seventh grade children reading achievement who were taught by different rationale approaches to reading.

To meet the requirements of Objective VIII, it was necessary to select only those subjects with Spanish-American surnames and IQ scores of 110 or above. Analysis of covariance was used to test for differences in reading achievement areas of vocabulary, comprehension, and speed and accuracy.

Vocabulary scores tested produced a mean square of 26.21 from a sum of squares of 52.42 and 2 degrees of freedom as stated in Table 47. Table 48 shows a computed F value of 1.781 with a needed F value of 5.14 for a .05 level of confidence. No significant difference was found.

To test the comprehension score, Table 49 shows a mean square of 38.48 with a sum of squares of 76.96 and 2 degrees of freedom. A needed F value of 5.14 for a level of confidence of .05 was not reached with a computed F value of 1.753 as indicated in Table 50. No significant difference was found.

As indicated in Table 51, the scores from the speed and accuracy test produced a mean square of 8.54 from a sum of squares of 17.09 with 2 degrees of freedom. A computed F value of 2.170 as shown in Table 52 did not reach the needed F value of 5.14 for a .05 level of confidence. No significant difference was found.

TABLE 47

ANALYSIS OF COVARIANCE OF THE OBTAINED VOCABULARY SCORES FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	52.42	26.21
Classes/Treatments	6	88.29	14.71
Regression on Pre-Test	1	179.95	179.95
Individuals/Classes/Treatments	26	268.79	10.34
Total	35	884.75	

Note:

F for Treatments = 26.21/14.71 = 1.781
F for Classes/Treatments = 14.71/10.34 = 1.423
F for Individuals/Classes/Treatments = 179.95/10.34 = 17.407

TABLE 48

VALUES OF F FOR VOCABULARY SCORES OBTAINED FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom		Computed F Value	F Value of .05
Treatments	2	6	1.781	5.14
Classes/Treatments	6	26	1.423	2.47
Individuals/Classes/Treatments	1	26	17.407*	4.22

*Significant beyond the .01 level.

TABLE 49

ANALYSIS OF COVARIANCE OF THE OBTAINED COMPREHENSION SCORES FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	76.96	38.48
Classes/Treatments	6	131.65	21.94
Regression on Pre-Test	1	654.05	654.05
Individuals/Classes/Treatments	26	722.56	27.79
Total	35	1,798.75	

Note:

F for Treatments = 38.48/21.94 = 1.753
F for Classes/Treatments = 21.94/27.79 = .789
F for Individuals/Classes/Treatments = 654.05/27.79 = 23.531

TABLE 50

VALUES OF F FOR COMPREHENSION SCORES OBTAINED FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom		Computed F Value	F Value of .05
Treatments	2	6	1.753	5.14
Classes/Treatments	6	26	.789	2.47
Individuals/Classes/Treatments	1	26	23.531*	4.22

*Significant beyond the .01 level.

TABLE 51

ANALYSIS OF COVARIANCE OF THE OBTAINED SPEED AND ACCURACY SCORES FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	17.09	8.54
Classes/Treatments	6	23.62	3.93
Regression on Pre-Test	1	45.06	45.06
Individuals/Classes/Treatments	26	146.27	5.62
Total	35	240.88	

Note:

F for Treatments = 8.54/3.93 = 2.170
F for Classes/Treatments = 3.93/5.62 = .699
F for Individuals/Classes/Treatments = 45.06/5.62 = 8.013

TABLE 52

VALUES OF F FOR SPEED AND ACCURACY SCORES OBTAINED FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 110 OR ABOVE

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	2.170	5.14
Classes/Treatments	6 26	.699	2.47
Individuals/Classes/Treatments	1 26	8.013	4.22

I. Objective IX

To determine differences among Spanish-American average IQ seventh grade children reading achievement who were taught by different rationale approaches to reading.

To answer Objective IX, only those subjects who had Spanish-American surnames and IQ scores between 91 and 109 were selected. The reading scores in vocabulary, comprehension, and speed and accuracy of these subjects were then tested for differences.

Table 53 records variations of vocabulary scores with a mean square of 61.07 computed from a sum of squares of 122.13 with 2 degrees of freedom. As indicated in Table 54, a F value of 5.14 is needed for a .05 level of confidence and a computed F value was 1.835. No significant difference was found.

When variation of comprehension scores were tested for difference, a mean square was computed of 4.71 from a sum of squares with 2 degrees of freedom as shown in Table 55. A computed F value of .081 was produced with a needed F value of 5.14 for a level of .05, as stated in Table 56. No significant difference was found.

When the difference of speed and accuracy score was tested, a mean square of 12.35 was produced from a sum of squares of 24.71 with 2 degrees of freedom as shown in Table 57. Table 58 shows a computed F value of 1.327 and a needed F value of 5.14 for a .05 level of confidence. No significant difference was found.

TABLE 53

ANALYSIS OF COVARIANCE OF THE OBTAINED VOCABULARY SCORES FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	122.13	61.07
Classes/Treatments	6	199.60	33.27
Regression on Pre-Test	1	547.73	547.73
Individuals/Classes/Treatments	165	2,306.49	13.98
Total	174	3,387.58	

Note:

F for Treatments = 61.07/33.27 = 1.835
F for Classes/Treatments = 33.27/13.98 = 2.379
F for Individuals/Classes/Treatments = 547.73/13.98 = 39.184

TABLE 54

VALUES OF F FOR VOCABULARY SCORES FOR THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	1.835	5.14
Classes/Treatments	6 165	2.379	2.15
Individuals/Classes/Treatments	1 165	39.184*	3.90

*Significant beyond the .01 level.

TABLE 55

ANALYSIS OF COVARIANCE OF THE OBTAINED COMPREHENSION SCORES FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	9.42	4.71
Classes/Treatments	6	347.89	57.98
Regression on Pre-Test	1	3,194.97	3,194.97
Individuals/Classes/Treatments	165	4,772.35	28.92
Total	174	8,809.51	

Note:

F for Treatments = 4.71/57.98 = .081
F for Classes/Treatments = 57.98/28.92 = 2.004
F for Individuals/Classes/Treatments = 3,194.97/28.92 = 110.418

TABLE 56

VALUES OF F FOR COMPREHENSION SCORES OBTAINED FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	.081	5.14
Classes/Treatments	6 165	2.004	2.15
Individuals/Classes/Treatments	1 165	110.418*	3.90

*Significant beyond the .01 level.

TABLE 57

ANALYSIS OF COVARIANCE OF THE OBTAINED SPEED AND ACCURACY SCORES FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	24.71	12.35
Classes/Treatments	6	55.83	0.30
Regression on Pre-Test	1	318.38	318.38
Individuals/Classes/Treatments	165	1,324.67	8.03
Total	174	1,878.86	

Note:

F for Treatments = 12.35/9.30 = 1.327
F for Classes/Treatments = 9.30/8.03 = 1.159
F for Individuals/Classes/Treatments = 318.38/8.03 = 39.645

TABLE 58

VALUES OF F FOR SPEED AND ACCURACY SCORES OBTAINED FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE BETWEEN 91 AND 109

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 6	1.327	5.14
Classes/Treatments	6 165	1.159	2.15
Individuals/Classes/Treatments	1 165	39.645*	3.90

*Significant beyond the .01 level.

J. Objective X

To determine differences among Spanish-American low IQ seventh grade children reading achievement who were taught by different rationale approaches to reading.

To meet the requirement of Objective X, it was necessary to select only those subjects with Spanish-American surnames and IQ score of 90 or below. Analysis of covariance was used to test for differences in reading achievement areas of vocabulary, comprehension, and speed and accuracy.

Table 59 shows the variation of vocabulary scores. The mean square of 2.10 produced from a sum of squares of 4.20 with 2 degrees of freedom. A computed F value of .085 was reached when a computed F value of 5.79 was needed for a level of confidence of .05. No significant difference was found.

To test the differences in comprehension, a mean square was computed of 76.68 from a sum of squares of 153.36 with 2 degrees of freedom, as shown in Table 61. Table 62 indicates a needed F value of 5.79 for a .05 level of confidence and a computed F value of 2.021. No significant difference was found.

Speed and accuracy scores were tested for difference and produced a mean square of 9.66 from a sum of squares of 19.35 with 2 degrees of freedom, as shown in Table 63. Table 64 shows a computed F value of .382 and a F value of 5.79 is needed for a .05 level of confidence. No significant difference was found.

TABLE 59

ANALYSIS OF COVARIANCE OF THE OBTAINED VOCABULARY SCORES FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	4.20	2.10
Classes/Treatments	5	123.22	24.66
Regression on Pre-Test	1	307.66	307.66
Individuals/Classes/Treatments	103	1,226.67	11.91
Total	111	1,815.71	

Note:

F for Treatments = 2.10/24.66 = .085
F for Classes/Treatments = 24.66/11.91 = 2.070
F for Individuals/Classes/Treatments = 307.66/11.91 = 25.834

TABLE 60

VALUES OF F FOR VOCABULARY SCORES OBTAINED FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 5	.085	5.79
Classes/Treatments	5 103	2.070	2.30
Individuals/Classes/Treatments	1 103	25.834*	3.94

*Significant beyond the .01 level.

TABLE 61

ANALYSIS OF COVARIANCE OF THE OBTAINED COMPREHENSION SCORES FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	153.36	76.68
Classes/Treatments	5	189.70	37.94
Regression on Pre-Test	1	1,542.59	1,542.59
Individuals/Classes/Treatments	103	2,491.94	24.19
Total	111	4,935.11	

Note:

F for Treatments = 76.68/37.94 = 2.021
F for Classes/Treatments = 37.94/24.19 = 1.568
F for Individuals/Classes/Treatments = 1,542.59/24.19 = 63.714

TABLE 62

VALUES OF F FOR COMPREHENSION SCORES OBTAINED FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 5	2.021	5.79
Classes/Treatments	5 103	1.568	2.30
Individuals/Classes/Treatments	1 103	63.714*	3.94

*Significant beyond the .01 level.

TABLE 63

ANALYSIS OF COVARIANCE OF THE OBTAINED SPEED AND ACCURACY SCORES FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Sum of Squares	Mean Square
Treatments	2	19.31	9.66
Classes/Treatments	5	126.45	25.29
Regression on Pre-Test	1	378.04	378.04
Individuals/Classes/Treatments	103	770.56	7.48
Total	111	1,494.28	

Note:

F for Treatments = 9.66/25.29 = .382
F for Classes/Treatments = 25.29/7.48 = 3.383
F for Individuals/Classes/Treatments = 378.04/7.48 = 50.524

TABLE 64

VALUES OF F FOR SPEED AND ACCURACY SCORES OBTAINED FROM THOSE SPANISH-AMERICAN SUBJECTS WHOSE IQ SCORES WERE 90 OR BELOW

SOURCE OF VARIATION	Degrees of Freedom	Computed F Value	F Value of .05
Treatments	2 5	.382	5.79
Classes/Treatments	5 103	3.383*	2.30
Individuals/Classes/Treatments	1 103	50.524*	3.94

*Significant beyond the .01 level.

V. CONCLUSIONS AND RECOMMENDATIONS

This concluding chapter consists of the conclusions and the recommendations. The conclusions include inferences drawn from the data collected from this investigation in light of the assumptions and limitations of the study. The recommendations are slated to supplement and clarify the finding of this project.

A. Conclusions

1. The First Objective was Stated: to determine differences among seventh grade children's reading achievement who were taught by different rationale approaches to reading.

The findings. No significant difference was found among vocabulary scores. No significant difference was found among comprehension scores. No significant difference was found among speed and accuracy scores.

The conclusions. Different rationale approaches to reading do not effect seventh grade children reading achievement in the areas of vocabulary, comprehension, and speed and accuracy. The high or low rationale approach is equally as effective to gain achievement in reading.

2. The Second Objective was Stated: to determine differences among high IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

The findings. No significant difference was found among vocabulary scores. No significant difference was found among comprehension scores. No significant difference was found among speed and accuracy.

The conclusions. Different rationale approaches to reading do not effect high IQ seventh grade children's reading achievement in the areas of vocabulary, comprehension, and speed and accuracy. The high or low rationale approach is equally as effective to gain achievement in reading.

3. The Third Objective was Stated: to determine differences among average IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

The findings. No significant difference was found among vocabulary scores. No significant difference was found among comprehension scores. No significant difference was found among speed and accuracy.

The conclusions. Different rationale approaches to reading do not effect average IQ seventh grade children's reading achievement in the areas of vocabulary, comprehension, and speed and accuracy. The high or low rationale approach is equally as effective to gain achievement in reading.

4. The Fourth Objective was Stated: to determine the difference among low IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

The findings. No significant difference was found among vocabulary scores. No significant difference was found among comprehension scores. No significant difference was found among speed and accuracy.

The conclusions. Different rationale approaches to reading do not effect low IQ seventh grade children's reading achievement in the areas of vocabulary, comprehension, and speed and accuracy. The high or low rationale approach is equally as effective to gain achievement in reading.

5. The Fifth Objective was Stated: to determine the difference among Anglo-American high IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

The findings. No significant difference was found among vocabulary scores. No significant difference was found among comprehension scores. No significant difference was found among speed and accuracy scores.

The conclusions. Different rationale approaches to reading do not effect Anglo-American high IQ seventh grade children's reading achievement in the area of vocabulary, comprehension, and speed and accuracy. The high or low rationale approach is equally as effective to gain achievement in reading.

6. The Sixth Objective was Stated: to determine the difference among Anglo-American average IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

The findings. No significant difference was found among vocabulary scores. No significant difference was found among comprehension scores. No significant difference was found among speed and accuracy scores.

The conclusions. Different rationale approaches to reading do not effect Anglo-American average IQ seventh grade children's reading achievement in the area of vocabulary, comprehension, and speed and accuracy. The high or low rationale approach is equally as effective to gain achievement in reading.

7. The Seventh Objective was Stated: to determine differences among Anglo-American low IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

The findings. No significant difference was found among vocabulary scores. No significant difference was found among comprehension scores. No significant difference was found among speed and accuracy.

The conclusions. Different rationale approaches to reading do not effect Anglo-American low IQ seventh grade children's reading achievement in the area of vocabulary, comprehension, and speed and accuracy. The high or low rationale approach is equally as effective to gain achievement in reading.

8. The Eighth Objective was Stated: to determine differences among Spanish-American high IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

The findings. No significant difference was found among vocabulary scores. No significant difference was found among comprehension scores. No significant difference was found among speed and accuracy scores.

The conclusions. Different rationale approaches to reading do not effect Spanish-American high IQ seventh grade children's reading achievement in the area of vocabulary, comprehension, and speed and accuracy. The high or low rationale approach is equally as effective to gain achievement in reading.

9. The Ninth Objective was Stated: to determine differences among Spanish-American average IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

The findings. No significant difference was found among vocabulary scores. No significant difference was found among comprehension scores. No significant difference was found among speed and accuracy scores.

The conclusions. Different rationale approaches to reading do not effect Spanish-American average IQ seventh grade children's reading achievement in the area of vocabulary, comprehension, and speed and accuracy. The high or low rationale approach is equally as effective to gain achievement in reading.

10. The Tenth Objective was Stated: to determine differences among Spanish-American low IQ seventh grade children's reading achievement who were taught by different rationale approaches to reading.

The findings. No significant difference was found among vocabulary scores. No significant difference was found among comprehension scores. No significant difference was found among speed and accuracy scores.

The conclusions. Different rationale approaches to reading do not effect Spanish-American low IQ seventh grade children's reading achievement in the area of vocabulary, comprehension, and speed and accuracy. The high or low rationale approach is equally as effective to gain achievement in reading.

B. Recommendations

This study was conducted to adopt and test a high and low rationale approach in teaching reading experimentally with seventh grade children in a multiethnic community.

The investigation was limited to a population selected from the Las Cruces Public Schools.

In order to supplement and clarify the findings of this study the following recommendations are suggested. It is recommended that:

1. The concept of rationale be reexamined to produce more concrete items in the definition than this study produced.
2. High and low rationale be tested at the first grade level to measure if differences occur in beginning reading.
3. Longitudinal studies should be conducted to determine if differences occur over longer time allotment in high and low rationale approaches.

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APPENDICES

A. Reading Check List

B. Gunning Fog Index of Readability

C. Scope and Sequence Charts

D. Low Rationale Sample Word List

E. Teacher's Evaluation of Project Approach

F. Teacher's Responses to Teacher's Evaluation of Project Approach

APPENDIX A

READING CHECK LIST[1]

1. What is the best book you have ever read?

2. Name other books you have liked.

3. Name some books of your own that you have at home.

4. Do you like to have someone read or tell a story to you? Yes....No....

5. Do you go to the public library? Often....Seldom....Never....

6. What magazines do you read?

7. Do you read comic books? Yes....No.... If yes, what are your favorite comic books?

8. Do you read a newspaper? Yes....No.... If yes, which parts?

9. What kind of books do you like best? For example, books about animals, about pilots, about children at home, about children in other lands, or about the stars and planets. Write the kinds of books you like best.

10. What kind of work do you want to do when you finish school?

11. Have you read books or stories about the kind of work you want to do? Yes....No.... If yes, name them.

12. Have you seen anyone on television or in the movies who does the kind of work you want to do? Yes....No.... If yes, who?

13. Do you plan to go to high school? Yes....No....
    Do you want to go to college? Yes....No....

14. Do you like school? Yes....No....

15. What school subject do you like best?
    What school subject do you like least?

16 In what subject do you get your best marks?
   Your poorest marks?

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[1] Adapted from an inventory Paul A. Witty, Alma Moore Freeland, Edith H. Grotberg, _The Teaching of Reading_, D.C. Heath and Company, Boston, pp. 408-410.

APPENDIX B

GUNNING FOG INDEX OF READABILITY[2]

Step I

Take a sample of 100 words. Get as close to 100 words as possible. Divide the number of sentences into the number of words.

Step II

Count the number of three or more syllable words in the sample passage with the following exceptions:

(a) Do Not count proper names
(b) Compound words
(c) Any verb forms

Step III

Get the percentage of the three syllable words obtained by the following formula:

Take the number of words divided into the number of three syllable words. This will give you a factor. Use the average sentence length found in Step I, and this will give you a second factor.

Step IV

Add the factors and then multiply by the constant .4, which will give you a grade level.

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[2] Robert Gunning, The Technique of Clear Writing, McGraw-Hill Book Company, Inc., New York, pp. 36-37.

APPENDIX C

SCOPE AND SEQUENCE CHART FOR THE SIXTH GRADE

Pupils are directed to use context and the phonetic clues they need to figure out unknown words for themselves. Independence is stressed.

1. The ability to identify strange words independently
   - Using consonant-sound associations with
     - (a) oral context
     - (b) printed context
   - Using both consonant and vowel-sound associations in absence of helpful context.
   - Using syllabication to decipher a strange word.
   - Using known words plus letter-sound associations to unlock compound words.
   - Using prefixes, suffixes, and common syllables as aids.

2. The ability to cope with meaning difficulties independently.
   - Interpreting the meaning and uses of special type.
   - Using a dictionary for
     - (a) unknown words
     - (b) new meanings for known words
   - Using context
     - (a) to choose the appropriate meaning of a multi-meaning word
     - (b) to get the meaning of figures of speech and idioms
   - Using punctuation marks as an aid to getting meaning.

3. The ability to make effective use of reference aids.
   - Interpreting graphs, maps, and charts.
   - Using a dictionary and its
     - (a) alphabetic order
     - (b) guide words
     - (c) pronunciation guides
   - Using an index
   - Locating information rapidly
   - Using a table of contents.

4. The ability to study informative material effectively and to read for different purposes.
   - Organizing notes
   - Making outlines
   - Remembering correct sequence
   - Reading to determine the main idea in a selection
   - Noting and remembering important details and correct sequence
   - Reading to draw conclusions
   - Identifying paragraph topics
   - Choosing subtopics

Grade 6

5. The ability to read well to others
    - Noting certain basic standards for effective oral reading of prose and poetry.
    - Using emotion, punctuation marks
    - Building characterization through reading a conversation or dialogue
    - Reading directions, explanations, or instructions, and making
        - (a) inferences
        - (b) generalizations
        - (c) judgments, evaluating the reading and drawing conclusions
    - Interpreting
        - (a) the mood of characters
        - (b) the author's purpose
    - Using imagination to visualize people, places, and things.

SCOPE AND SEQUENCE CHART FOR THE SEVENTH GRADE

The general aim of the seventh grade program continues instruction, review, and practice of the skills developed in the intermediate grades. Basic in the program is the desire to make reading enjoyable and to stimulate and build interest in increasing reading achievement. Appreciation of literature has become as important as skills development.

1. Concept development
    - Concrete concepts that deal with objects and their function.
    - Chronological concepts that deal with hours, seasons and sequences of events in history.
    - Spatial concepts that deal with the relation of places to their own home and to the universe.
    - Social concepts that deal with appropriate behavior.

2. Vocabulary building
    - Learning new words using five approaches employed in the first six grades of
        - (a) context clues
        - (b) phonetic analysis
        - (c) structural analysis
        - (d) syllabication
        - (e) using the glossary and dictionary.
    - Word recognition by the student of words in his listening vocabulary.

3. Reading comprehension
    - Interpretation of figurative language
    - Identifying main ideas through discussion and written statements
    - Recalling the sequence of study development
    - Skimming for rapid location of information and specific ideas or facts
    - Outlining to identify the important facts and ideas and indicating their relation to the whole organizationally
    - Summarizing by writing clearly, accurately and concisely.
    - Understanding the sentence and the paragraph organization.

4. Flexibility of Reading Rate
    - Identification of the reader's purpose for reading and accomplishment of it
    - Reading of the material as rapidly as possible for the accomplishment of its purpose.

Grade 7

5. Critical and interpretive reading
    - Reading with discrimination for differences between
        - (a) fact and opinion
        - (b) emotive and factual material
    - Reading to interpret
        - (a) author's meaning
        - (b) author's purpose
        - (c) character's actions, feelings, moods, and motives
        - (d) factual material
        - (e) emotive material
    - Reading to infer
        - (a) perceive relationships
        - (b) make inferences
        - (c) draw logical conclusions
        - (d) predict outcomes
    - Reading to visualize
        - (a) action
        - (b) characters
        - (c) setting

6. Study skills
    - Emphasis of the skills needed for outlining study materials and utilizing notes for study and review

SCOPE AND SEQUENCE CHART FOR THE EIGHTH GRADE

I. Five crucial reading skills are stressed at this level:

1. Reading for main events
2. Reading for details
3. Reading to visualize action
4. Reading to visualize setting and
5. Reading to visualize character

Through reading for main events and supporting details, the reader learns to sense writing design.

II. Vocabulary development is programmed through four systematic methods:

(a) structure
(b) context
(c) etymology
(d) dictionary

Skill building is cumulative with regular opportunities for review. Basic clue to words in any alphabetic language is sound. Sound or phonic clue prevades all four ways of developing vocabulary. Sound is emphasized in structure where prefixes and suffixes are taught; through context where students pronounce the word before thinking through the patterns of English statement; through etymology as students learn the history of words; and through the teaching dictionary (in the text).

1. Structure
    Prefixes are from the fifteen used most often
    Suffixes are from the twenty most frequent
    Latin roots are from the group used in thirty per cent of the English words

2. Context
    Shades of meaning built through sensitivity to suggestion which goes beyond the literal
    Stressed through synonyms, antonyms, onomatopoeia, and alliteration

3. Etymology
    History of words in English traced to origins

4. Dictionary skills
    Using guide words,
    Diacritical marking system,
    Parts of speech,
    Etymologies and,
    Meanings for differing contexts

Grade 8

III. Reading for appreciation

Two principal kinds of appreciation are stressed:

(1) appraisal of ideas and emotions, and
(2) analysis of techniques of writing

A. Appraisal of ideas and emotions

Three kinds of appraisal directed toward ideas, ideals, and emotional reactions generated by good writers are emphasized.

1. Developmental tasks
2. Cause and effect relationships and
3. Themes

B. Analysis of writing techniques

1. Learning to weigh merits of language designed to create suspense, humor, realism, and emotional effects
2. Learning sensitivity to rhythm and rhyme, to dialogue and figures of speech
3. Recognizing mood

APPENDIX D

LOW RATIONALE SAMPLE WORD LIST

WORDS LOOK ALIKE AT THEIR BEGINNING

HAMMER
HACK
HATCH
HAND
HALF
HAD

PACKAGE
PACK
PAT
PANCAKE
PACKRAT
PANSY

FAN
FAG
FAMINE
FANG
FAMILY
FACT

MATCH
MAT
MASH
MATTER
MAGNET
MAD

WORDS LOOK ALIKE IN THEIR MIDDLE

LOOK
BOOT
TOOK
TOOT
BOOK
STOOD

MOUNTAIN
COURSE
MOURN
MOUSE
POUR
BOUT

TEEM
BREEZE
SNEER
FREEZE
SNEEZE
REED

ROPE
LOBE
VOTE
ROBE
JOKE
CONE

WORDS LOOK ALIKE AT THEIR END

CRUTCH
MATCH
BATCH
HATCH
CATCH
LATCH

LOCK
STOCK
BRICK
BACK
PLUCK
RACK

JUMPING
WEEPING
FISHING
HATCHING
MENDING
READING

BRUSH
CASH
MASH
MUSH
RUSH
SPLASH

WORDS SOUND ALIKE AT THE BEGINNING

DRUM
DRUG
DROP
DRILL
DRIP
DRIBBLE

SWIM
SWAP
SWITCH
SWIFT
SWIPE
SWANKY

BLOCK
BLANK
BLOT
BLAME
BLOND
BLEND

TREE
TRUCK
TRUST
TRAIN
TRIGGER
TRIP

WORDS SOUND ALIKE IN THEIR MIDDLE

BEEF
WEED
WEEP
PEEK
KEEP
JEEP

SELF
FELL
SEVEN
SEND
SEVER
TELLER

GOAL
ROAD
LOAN
ROACH
SOAK
SOAP

MEAT
SEAT
REACH
BEAM
DREAM
NEAT

WORDS SOUND ALIKE AT THEIR END

DRINK
PINK
BLINK
SLINK
MINK
THINK

PATCH
HATCH
LATCH
MATCH
THATCH
WATCH

TICK
BRICK
THICK
NICK
SICK
TRICK

CRACKER
PLANTER
FLUTTER
PLASTER
YONDER
QUITTER

SOME WORDS SOUND ALIKE BUT LOOK DIFFERENT

TEAM	TEEM
READ	RED
HAIR	HARE
TEA	TEE
BLUE	BLEW
PAIR	PARE

HEAR		HERE
THERE		THEIR
READ		REED
TO	TWO	TOO
BY	BUY	BYE

SOME WORDS LOOK ALIKE BUT SOUND DIFFERENT

READ
REBEL
TEAR
LIVE
POLISH
LEAD

CONTEST
CONTRACT
CONDUCT
RECORD
MINUTE
BOW

APPENDIX E

TEACHER'S EVALUATION OF PROJECT APPROACH

Please answer the questions on this form and return by mail before April 25, 1969.

1. Now that this project has ended, what part of the project approach will you continue to use in your teaching of reading?

2. Now that this project has ended, what part of the project approach will you discard in your teaching of reading?

3. How much did your children learn about reading during the approach compared to the approach used before the project?

High Rationale	More____	Less____	About the same____
High Individual	More____	Less____	About the same____
Low Rationale	More____	Less____	About the same____

4. What did your children like or enjoy about the project approach you used? Identify approach.

5. What did your children dislike or not enjoy about the project approach you used? Identify approach.

6. What do you think the strong teaching points are of the project approach you used? Identify approach.

7. What do you think the weak teaching points are of the project approach you used? Identify approach.

List any information you feel might be helpful to the investigator for future proceeds.

APPENDIX F

TEACHER'S EVALUATION OF PROJECT APPROACH

1. What part of the project approach will you continue to use in your teaching of reading?

   Low Individual 6
   High Individual 4
   Structured 1
   Both High and Low 1
   All three approaches 1

2. What will you discard?

   Low Individual 2
   Conferences 1
   One Method 3
   Nothing 1
   High Rationale 1
   Will limit individual reading time 5

3. How much did children learn?

High Rationale	More 1	Less 2	About the same 6
High Individual	More 2	Less 0	About the same 4
Low Rationale	More 5	Less 1	About the same 6

4. What did the children enjoy?

   Low Rationale - free reading time 5 Interesting material 6
   Being read to - 1 Novelty of low rational - 1
   High individualized approach - 1 Free selection and informal guidance 1

5. What did the children dislike?

   Needed help in word attack
   Basal reader - 5
   High rationale explanations
   High individual and low rationale - same thing every day became dull
   Tired of paperbacks at about 12 weeks
   Poor reader tired of reading for an entire period
   Conferences boring for good readers and embarassing for poor readers.

6. Strong teaching points:

   Individual conferences 5
   Low rationale - rapport 4

High interest level
Easier for the teacher
Learning of new methods to help children
High rationale - very structured
Free choice of reading material

7. Weak teaching points:

Need more time - low rationale
Need more paperbacks
Lack of privacy for conference
Low interest level - high rationale
Need more training
Need to change program structure after 12 weeks - high individual and low rationale
High rationale - no allowances for individual differences
No time left for oral language activity
Too much free reading - low rationale
High individual - need opportunity for directed study of skills
Children do not have sufficient experience or information to work on their own.

Helpful information for future investigator

Assistants
Change of techniques each semester
Closer teacher supervision
Change of techniques each quarter
Low rationale good approach for low-average students
Need for smaller classes.